Cross-country skiing sprint (XC SS) has been established to FIS calendar in this millennium. There is lack of published data on both biomechanical and physiological characteristics in XC SS. In XC SS race velocities are greater than in normal distances because of shorter performances. This increases demands of skier’s neuromuscular characteristics and technique (Stöggl et al. 2006). Thus, it has already been introduced a new sprinter-like double poling technique by Holmberg et al. (2005). The aim of this study was to investigate the influence of different cycle parameters of double poling on time trial performance (TTP) in classical XC SS. The data was collected from the national championship race in January 2007. Sixteen women and 24 men skiers were filmed (Sony DCR-TRV900E, 50 frames / s, 1/215 s of shutter speed) at constant 20 meter flat section of the course during the time trial. Time of the poling phase (PP) and recovery phase (RP), cycle time (= PP + RP) and frequency of the double poling technique used were analyzed from the video. The mean of 2-3 cycles were used in the results and further analysis. The mean velocity (V20) and mean cycle length of 20 m, relative RP (% of cycle time) and relative PP (% of cycle time) were calculated. TTP was determined as the mean velocity of the 1300 m time trial. Both men and women were divided to subgroups by TTP performance: 12 fastest men and 8 women and 12 slowest men and 8 women. Faster men had greater V20 (p<0.001), cycle length, RP and relative RP (p<0.05) but smaller PP and relative PP (p<0.05) than slower men, respectively. Similarly, faster women had greater V20 (p<0.001) and relative RP (p<0.05) but smaller PP and relative PP (p<0.05) than slower women, respectively. There were no significant differences in poling frequency in men or women between the groups. In pooled data of men TTP correlated with V20 (r = 0.72) (p<0.001), cycle length (r = 0.46), relative RP (r = 0.41) and relative PP (r = -0.41) (p<0.05). In pooled data of women TTP correlated strongly with V20 (r = 0.97) (p<0.001) and PP (r = -0.62) (p<0.01). These results indicated that PP is an important parameter to separate fast and slow skiers. The present results are in line with recent studies of Stöggl et al. (2006) and Holmberg et al. (2005). Faster skiers seem to be able to produce more force or the necessary force levels in a shorter time than slower skiers. Thus, skiers should emphasize to increase the ability to produce force rapidly in their training which leads to a sufficient propulsion impulse in a shorter poling time.